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(Vegetable Product Series, No. 41.)
(Food Substances.)

THE
AGRICULTURAL LEDGER.

1898—No. 7.

(Reprint from Assam Bulletin No. 4.)

PIPER NIGRUM.

(BLACK PEPPER.)

DICTIONARY OF ECONOMIC PRODUCTS, Vol. VI., Pt. I.,
P. 811-20.]

CULTIVATION OF BLACK PEPPER IN ASSAM.

A Note by MR. BHUPENDRA CHANDRA BASU, Assistant to the Director of Land
Records and Agriculture, Assam, with an Introduction by MR. D. HOOPER.

CORRECTION.

In title and half-title of Agricultural Ledger No. 7 of 1898, for
Mr. Bhupendra Chandra Basu read Mr. Bhupal Chandra Basu.

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The objects of THE AGRICULTURAL LEDGER are—

- (1) To provide information connected with agriculture or with economic products, in a form which will admit of its ready transfer to ledgers ;
- (2) To secure the maintenance of uniform ledgers (on the plan of the Dictionary) in all offices concerned in agricultural subjects throughout India, so that references to ledger entries made in any report or publication may be readily utilised in all offices where ledgers are kept ;
- (3) To admit of the circulation, in convenient form, of information on any subject connected with agriculture or economic products to officials or other persons interested therein ;
- (4) To secure a connection between all papers of interest published on subjects relating to economic products, and the official Dictionary of Economic Products. With this object the information published in the ledgers will uniformly be given under the name and number of the Dictionary article which they more especially amplify. When the subject dealt with has not been taken up in the Dictionary, the position it very possibly would occupy in future issues of that work will be assigned to it.

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PIPER NIGRUM. (BLACK PEPPER)

[Dictionary of Economic Products, Vol. VI., Pt. I., P. 811-20.]

CULTIVATION OF BLACK PEPPER IN ASSAM.

1. Note by MR. BHUPENDRA CHANDRA BASU, Assistant to the Director of Land Records and Agriculture, Assam.
2. Introductory Note by MR. D. HOOPER.

In publishing the interesting note by Mr. Bhupendra Chandra Basu on "Pepper in Assam," it would be well to preface it by a few general remarks on the cultivation of black pepper in India. The pepper vine (*Piper nigrum*, Linn.) is indigenous to the forests of Travancore and Malabar whence it has been introduced into Sumatra, Java, Borneo, Malaya and Siam. The earliest travellers to India observed the cultivation of the vine in Malabar and the important trade carried on in the spice between Europe and the ports of Calicut, Alipha and Quilon on the Western Coast.

A wild pepper was found by Dr. Roxburgh in the hills north of Simulcotta on the Eastern Coast. The plant, on account of its sexual peculiarities, was named *Piper triocum*, but according to later authorities, it is now considered to be nothing more than the wild form of *P. nigrum*. The author of the "Flora of British India" remarked in 1886 that "our knowledge of the specific limits of *P. nigrum* are as vague as of its geographical."

In Bombay the only district in which pepper is grown to any extent is Kanara. The varieties are named *kari maliaru*, *samhar* and

INTRODUC-
TORY.

Habitat.

Madras.

Bombay.

PIPER nigrum.	Cultivation of Black										
INTRODUC- TION.	<p><i>arsina muruga</i>. The quality of the spice yielded by these three kinds of plants does not differ very materially, the difference consists in the crop the proportionate weight of which is greatest from the first named variety and least from the third. The pepper is fairly well established in the State of Mysore. In various parts of Burma the local demand for pepper, which is not very large, is said to be satisfied by its cultivation as a garden crop in villages, a system introduced by the Chinese.</p>										
Mysore.											
Burma.											
Bengal.	<p>Bengal imports large quantities of pepper from the Straits notwithstanding the heavy production of the spice in the country. The exportation of pepper from the Straits exceeds at the present time that from any other country and its quality is much esteemed.</p>										
Comparative weights of peppers.	<p>The general opinion of the trade is that Malabar pepper is superior in being the heaviest, and the merchant relies upon this fact more than upon its appearance. Peppers are hence known as "heavy," "half heavy" and "light." Dr. Wynter Blyth in 1855 estimated the exact weight of 100 pepper corns belonging to different trade samples. The following was the result:—</p> <table data-bbox="399 913 882 1057"> <tr> <td>100 pepper corns of Penang, weighed</td><td>6249 grams.</td></tr> <tr> <td>" " Malabar "</td><td>6053 "</td></tr> <tr> <td>" " Sumatra "</td><td>5147 "</td></tr> <tr> <td>" " Trang "</td><td>4573 "</td></tr> <tr> <td>" " Tellicherry "</td><td>4507 "</td></tr> </table>	100 pepper corns of Penang, weighed	6249 grams.	" " Malabar "	6053 "	" " Sumatra "	5147 "	" " Trang "	4573 "	" " Tellicherry "	4507 "
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Assam pepper Reg. No. 10701.	<p>The first two were bracketed together as standing first, Sumatra held the second place, and the last two the third.</p>										
Assam pepper Reg. No. 10701.	<p>The Officiating Director, Department of Land Records and Agriculture, Assam, has kindly forwarded a sample of Assam pepper illustrative of Mr. Basu's paper. The fruits were smaller and more irregularly marked than the usual commercial samples. A weight test was taken of the pepper corns to compare their heaviness with other specimens. At the same time a sample of ordinary Bengal pepper from the Economic Gallery of the Indian Museum was tested with the following result:—</p> <table data-bbox="399 1370 882 1424"> <tr> <td>100 pepper corns of Bengal, weighed</td><td>6157 grams.</td></tr> <tr> <td>" " Assam "</td><td>3082 "</td></tr> </table>	100 pepper corns of Bengal, weighed	6157 grams.	" " Assam "	3082 "						
100 pepper corns of Bengal, weighed	6157 grams.										
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Compared with Bengal pepper Reg. No. 3618.	<p>The Assam pepper was only half the weight of the Bengal which compared favourably with that of good commercial fruits. It is possible that in Assam the cultivators have not paid sufficient attention to the quality of the fruit.</p>										

Pepper in Assam.

(B. C. BAIRD.)

PIPER
nigrum.

men to collecting the crop as the fruit begins to ripen. If collected when too young or allowed to hang on the tree after they are ripe, the pepper corns deteriorate in appearance, solidity and value.

CULTIVATION

It is not perhaps generally known that black pepper is cultivated as a garden crop in certain parts of Assam. The writer of the article on black pepper (*Piper nigrum*) in Dr. Watt's *Dictionary of Economic Products* does not mention its cultivation in Assam; the only reference made in that article to Assam is to the effect that black pepper is doubtfully indigenous in the forests of this province.* I have found black pepper being grown in many villages in the Sibsagar district. It is chiefly found in some villages in mauza Gaduh Bazar in the west of the Salar sub-division. In this mauza is a village Jalukgaon, named after the Assamese word for black pepper. It is currently reported to have been the chief seat of pepper cultivation at one time. In Lower Assam the cultivation of black pepper is reported to be unknown. On the other hand, a little of it is to be found in Sylhet and on the southern slopes of the Khasi Hills bordering on that district. The crop is not, however, cultivated to any appreciable extent in any part of Assam. It is usually cultivated to supply the cultivator's own requirements, and what is left over after meeting his own wants is sold. The aggregate quantity of black pepper produced in Assam is indeed very small, and very little of it finds its way to the market. Assam continues to derive its supply of this spice chiefly from Calcutta, although there is no apparent reason why it should not grow the whole of it, and have more to spare.

A garden crop occasionally met with.

* Black pepper village.

Not extensively cultivated.

Supplies mostly imported.

Vernacular.

The black pepper vine is known in Assam as *gach jaluk*, and the spice locally produced as *guti jaluk* or *bāri jaluk*, the latter name owing its origin to the fact of the spice being the produce of an Assamese *bāri* or homestead, as distinguished from the usual commercial product, which, from its being sold by shop-keepers, is known as *golar jaluk*. Only one variety of cultivated black pepper is known in Assam. The Assam pepper seed is slightly smaller in size than the foreign product which comes through Calcutta. The

Assam pepper smaller than the foreign article.

* From enquiries I have made, black pepper does not appear to occur in the wild state in any part of the Assam Valley, but an allied species (*P. longum*), the *pipal* or long pepper, is so found.

PIPER nigrum.	Cultivation of Black
CULTIVATION	indigenous article is, however, more pungent, perhaps because it is more fresh, and, therefore, commands a higher price in the local market.
Trees employed as a support for the vine	<p>In Assam, the black pepper vine, like the betel vine (<i>Piper Betle</i>), is usually grown on betel-nut trees (<i>Areca Catechu</i>), mango (<i>Mangifera indica</i>), jack (<i>Artocarpus integrifolia</i>), and other garden trees are occasionally utilised for the purpose; but of all trees the betel-nut is regarded as the most convenient and suitable for raising <i>pan</i> and black pepper. It is planted immediately around the raiyat's homestead, and receives more manure, labour and care than any other tree or crop grown by him. The rearing of betel and pepper vines in association with this tree entails but little additional labour on the cultivator. The plucking of the leaf in the case of <i>pan</i> and of the ripe berry in the case of black pepper is also very convenient when these are grown on the betel-nut trees, as by the simple application of a ladder every part of the vine can be easily and quickly reached.</p>
Betel-nut tree:	<p>The pepper vine is raised either from suckers which spring up from underground roots or from shoots from the stem. Shoots when used, are bent down into the ground to strike root before they are severed from the mother plant. The young plants are taken out with their roots at the beginning of the rains, and transplanted at the foot of the trees on which they are intended to grow. Generally, only one plant is put down at the foot of each tree. The slender stem of the young vine requires in the beginning to be carefully tied on to the supporting tree. As it grows up, it throws out from each joint numerous bunches of short claw-like adventitious roots, which penetrate into the soft outer bark of the supporting tree, and give the vine a firm hold upon the latter. New shoots and suckers continue to appear, and growing up the tree, envelope it in the course of a few years with a dense mass of foliage.</p>
Advantage of.	<p>The subsequent treatment of the black pepper plant cannot be distinguished from that of the betel-nut tree, with which it is mostly associated. Like the latter, it requires to be very liberally manured. Cowdung and household refuse are the only manures in use in Assam and of these as much is given as the cultivator can afford. The manure is applied at the end of the rains and at intervals all through the cold weather. It is simply heaped up round the base of the tree on which the vine grows, and affords nutrition to both. The</p>
Manner of rearing the vine.	
Later treatment of black pepper and betel-nut very similar.	

Pepper in Assam.	(B. C. Raw.)	PIPER nigrum.
<p>manure heap serves the further purpose of protecting the vine from cold and drought. To keep in the moisture in the manure heap, pieces of the thick juicy bark of a plantain tree are ranged round the base of the tree and renewed from time to time. A betel-nut plantation, whether <i>pin</i> or pepper be grown there or not, must be hoed, and cleaned once in the year at the close of the monsoon rains; a careful cultivator would repeat the operation thereafter and until the rains again set in as often as he could spare time and labour for the purpose. The ground should be kept as clean and free of weeds as possible at all times of the year. In May, the manure heaps are levelled down and spread over the ground, otherwise they would absorb too much moisture and cause the roots of the vine to rot.</p> <p>The pepper vine is very susceptible to drought, which often proves fatal. Rain and fog in the cold weather cause the leaves to fall off, and are consequently dreaded by the cultivators. The plants often remain bare until the first warm showers of April, when new leaves re-appear. Hailstorms are a frequent source of injury to black pepper and other crops in Assam. Some damage is also caused by a species of caterpillar which feeds on the leaves of the pepper vine. When it appears, it is destroyed as far as possible by hand-picking.</p> <p>The black pepper vine begins to bear in from three to five years after planting, and continues to yield for at least twenty years. In every plantation, there are usually one or more vines which neither flower nor fruit. These are called <i>mard</i> or males, and the rest which bear fruit are known as females. The vine flowers in May and the berries are plucked in December. They are gathered when just beginning to ripen. If allowed to ripen fully they fall off and are picked off by birds. Pepper is cured in Assam in two different ways. Extended for the cultivator's own use, the berries would be boiled in water for a few minutes in order to soften the husk, which would then be removed by rubbing the berries over a bamboo basket. The spice so prepared is of a whitish colour, and more pungent than the black prepared for the market. For this latter purpose, the berries are simply dried in the sun after boiling, and allowed to retain the husk, which assumes a black colour, and gives the black pepper of commerce its distinctive name.</p>		<p>CULTIVATION</p> <p>Manuring.</p> <p>Hoing and cleaning.</p> <p>Climate conditions which are unfavourable to the plant.</p> <p>Insect pest.</p> <p>Longevity.</p> <p>Unproductive vines.</p> <p>Seasons of flowering and harvesting.</p> <p>Curing.</p> <p>Two methods.</p>

PIPER nigrum.	Cultivation of Black Pepper in Assam.
CULTIVATION	<p>The produce of a vine varies with its age and size and the character of the season. The highest outturn that can be obtained from a single vine is said to be about three seers of dry cured pepper; the average yield is commonly reported to be about one seer for each vine in a plantation. The retail price of Assam black pepper varies from 10 annas to a rupee per seer, and the wholesale price from Rs 17 to Rs 20 per maund. An acre of betel-nut plantation can hold about 500 trees, and if each tree had a pepper vine on it, the annual yield of pepper alone from the plantation might amount to over 12 maunds, valued wholesale at Rs 200 to Rs 250.</p>
Yield.	
Prices.	

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All communications regarding THE AGRICULTURAL LEDGER should be addressed to the Editor, Dr. George Watt, Reporter on Economic Products to the Government of India, Calcutta.

The objects of this publication (as already stated) are to gradually develop and perfect our knowledge of Indian Agricultural and Economic questions. Contributions or corrections and additions will therefore be most welcome.

In order to preserve a necessary relation to the various Departments of Government, contributions will be classified and numbered under certain series. Thus, for example, papers on Veterinary subjects will be registered under the Veterinary Series; those on Forestry in the Forest Series. Papers of more direct Agricultural or Industrial interest will be grouped according as the products dealt with belong to the Vegetable or Animal Kingdom. In a like manner, contributions on Mineral and Metallic subjects will be registered under the Mineral Series.

This sheet and the title-page may be removed when the subject-matter is filed in its proper place, according to the letter and number shown at the bottom of each page.

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